Plant Sociology 60(2) 2023, 115–127 | DOI 10.3897/pls2023602/08

PENSOFT

Società Italiana di Scienza della Vegetazione (SISV)

# New national and regional Annex I Habitat records: from #83 to #101

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Subject editor: Daniela Gigante ♦ **Received** 30 November 2023 ♦ **Accepted** 22 December 2023 ♦ **Published** 31 December 2023

## Abstract

New Italian data on the distribution of 17 Annex I Habitats are reported in this contribution. Specifically, 11 new occurrences in Natura 2000 sites are presented and 30 new cells are added in the EEA 10 km × 10 km reference grid. The new data refer to the Italian administrative regions of Apulia, Campania, Calabria, Lazio, Sardinia, Sicily and Tuscany.

## Keywords

Vegetation, 1410, 2110, 2120, 3140, 3150, 3170*, 3240, 3260, 3280, 5230*, 6110*, 6420, 6430, 8210, 92A0, 9320, 9330

## Introduction

This is the ninth contribution reporting records of new occurrences of Annex I Habitats (92/43/EEC Directive) in Europe. Based on the results of the 4th Report ex-Art. 17 on Annex I Habitat Monitoring in Europe (Eionet 2019), these cell occurrences are newly recorded for Italy. The related phytosociological relevés of each contribution are reported and archived in the Italian database "VegItaly" (Gigante et al. 2012; Landucci et al. 2012).

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## Habitats records

Following the standard format of Gigante et al. (2019b), all species data, site data and descriptions of the new habitat records are hereafter provided. We provide a summary in Tab. 1, offering an overview of the novelties. We used the open source QGIS ***Geographic information*** System (QGIS.org 2020) for mapping purposes. Relevés and figures are provided as Supplementary material respectively 1 and 2.

### #83 Annex I Habitat: 1410 Mediterranean salt meadows (*Juncetalia maritimi*) (Mascia F, Orrù I)

***EUNIS Classification system***: MA25 - Mediterranean littoral biogenic habitat (formerly A2.5 - Coastal saltmarshes and saline reedbeds) (EEA 2022)
***Biogeographical Region***: Mediterranean
***National Habitat Checklist of reference***: Italian Interpretation Manual of the Directive 92/43/EEC Habitats (Biondi et al. 2009).
***Phytosociological reference***: *Juncion maritimi* Br.-Bl. ex Horvatić 1934 (Suppl. material 1, Table S1, Rels 1–2), *Plantaginion crassifoliae* Br.-Bl. in Br.-Bl. et al. 1952 (Suppl. material 1, Table S1, Rels 3–4), *Juncetalia maritimi* Br.-Bl. ex Horvatić 1934, *Juncetea maritimi* Br.-Bl. in Br.-Bl. et al. 1952 (Mucina et al. 2016).
***Geographic information***: Italy, Sardinia, Sud Sardegna, Portoscuso, loc. Buca de Flumini/Guroneddu, 30–35 m a.s.l., Coordinates: 39.238957 N, 8.383464 E (centroid) (Suppl. material 1, Table S1, Rels 1–4)
***Cell ID in the EEA reference grid***: 10kmE418N179 (Suppl. material 2, Figure S1)
***Natura 2000 Site Code***: currently not included in any Natura 2000 Site.
***Phytosociological table***: Suppl. material 1, Table 1; nomenclature and taxa delimitation according to Portal to the Flora of Italy (2023).
***Notes***: They are located along the final stretches of the Canali de Flumineddu, a small permanent fresh watercourse that flows into the sea from the cliff (Suppl. material 2, Fig. S2a). Due to the morphology of the impluvium and its exposure, these communities are directly exposed to salty marine aerosols, resulting in close contact with hygrophilous communities of the class *Phragmito australis-Magnocaricetea elatae* Klika in Klika and Novák 1941 inland and with halo-chasmophilous communities of the class *Crithmo maritimi-Staticetea* Br.-Bl. in Br.-Bl., Rousssine and Nègre 1952 em. Biondi 2007 to the sea face of the cliff. This community holds significant conservation value due to the presence of rare endemic (e.g., *Borago morisiana* Bigazzi and Ricceri) or of phytogeographic interest (e.g., *Linum maritimum* L., Suppl. material 2, Fig. S2b) taxa, whose occurrence in the area was previously unknown. While the site is not included in the Natura 2000 network, it is encompassed within the area of outstanding botanical and phytogeographic interest under art. 143 of the regional landscape plan (PPR) - Autonomous Region of Sardinia, ID73 "Capo Altano" (RAS, 2006).

### #84. Annex I Habitat: 2110 Embryonic shifting dunes (Rivieccio G, Caria MC, Bagella S)

***EUNIS Classification system***: N14 - Mediterranean, Macaronesian and Black Sea shifting coastal dune (formerly B1.3 - Shifting coastal dunes) (EEA 2021)
***Biogeographical Region***: Mediterranean
***National Habitat Checklist of reference***: Italian Interpretation Manual of the Directive 92/43/EEC Habitats (Biondi et al. 2009).
***Phytosociological reference***: *Ammophilion* Br.-Bl. 1921, *Ammophiletalia* Br.-Bl. and Tx. ex Westhoffet al. 1946, *Ammophiletea* Br.-Bl. and Tx. ex Westhoff et al. 1946 (Mucina et al. 2016).
***Geographic information***: Italy, Sardinia, Sassari, Santa Teresa, spiaggia Lu Pultiddolu, 2 m a.s.l., Coordinates: 41.181853 N, 9.167515 E (Suppl. material 1, Table S2, Rel. 1); spiaggia La Liccia, 7 m a.s.l., Coordinates: 41.176975 N, 9.172678 E (Suppl. material 1, Table S2, Rel. 2); Aglientu, Monte Russu, 5 m a.s.l., Coordinates: 41.147902 N, 9.123803 E (Suppl. material 1, Table S2, Rel. 3); Santa Teresa, Capo Testa, spiaggia Rena di Ponente, 1 m a.s.l., Coordinates: 41.235138 N, 9.161994 E (Suppl. material 1, Table S2, Rel. 4); 41.235195 N, 9.161895 E (Suppl. material 1, Table S2, Rel. 5); 41.235282 N, 9.161723 E (Suppl. material 1, Table S2, Rel. 6); 41.235363 N, 9.161549 E (Suppl. material 1, Table S2, Rel. 7) 41.235425 N, 9.161445 E (Suppl. material 1, Table S2, Rel. 8).
***Cells ID in the EEA reference grid***: 10kmE425N200 (Suppl. material 1, Table S2, Rels 1–3); 10kmE425N201(Suppl. material 1, Table S2, Rels 4–8) (Suppl. material 2, Figure S3).
***Natura 2000 Site Code***: ZSC ITB010006 “Monte Russu” (Suppl. material 1, Table S2, Rels 1-3), ZSC ITB010007 “Capo Testa” (Suppl. material 1, Table S2, Rels 4-8).
***Phytosociological table***: Suppl. material 1, Table S2; nomenclature and taxa delimitation according to Portal to the Flora of Italy (2023).
***Notes***: The surveys for the ZSC "Monte Russu" were conducted in 2022 as part of the monitoring of dune habitats within the Natura 2000 network and surrounding areas, funded by the Sardinia Regional Government. Here, the habitat is well-represented across the entire dune system, characterized by its typical composition dominated by *Thinopyrum junceum*. The habitat had not been reported previously, likely because it was confused with the 2210 habitat "*Crucianellion maritimae* fixed beach dunes". At the beach of Capo Testa, the habitat is located at the bottom and just on top of a significantly high mound of *Posidonia* seagrass set aside at the back of the beach following the intense 'cleaning' activity carried out for the tourist season. The habitat almost immediately mixes af-

ter a few meters with the 2210 habitat. We also recorded the presence of the invasive alien species *Carpobrotus aci-naciformis*.

## #85. Annex I Habitat: 2110 Embryonic shifting dunes (Morabito A, Musarella CM, Spampinato G)

***EUNIS Classification system***: N14 - Mediterranean, Macaronesian and Black Sea shifting coastal dune (formerly B1.3 - Shifting coastal dunes) (EEA 2021)
***Biogeographical Region***: Mediterranean
***National Habitat Checklist of reference***: Italian Interpretation Manual of the Directive 92/43/EEC Habitats (Biondi et al. 2009).
***Phytosociological reference***: *Cypero mucronati-Elytrigietum junceae* Br.-Bl. 1933, *Ammophilion* Br.-Bl. 1921, *Ammophiletalia* Br.-Bl. and Tx. ex Westhoffet al. 1946, *Ammophiletea* Br.-Bl. and Tx. ex Westhoff et al. 1946 (Biondi and Blasi 2015, Mucina et al. 2016)
***Geographic information***: Italy, Calabria, Reggio Calabria, Roccella Ionica, 6 m a.s.l., Coordinates: 38.327411 N, 16.430000 E (Suppl. material 1, Table S3, Rel. 1); 4 m a.s.l., Coordinates: 38.327245 N, 16.427569 E (Suppl. material 1, Table S3, Rel. 2);
***Cell ID in the EEA reference grid***: 10kmE488N171 (Suppl. material 2, Figure S3).
***Natura 2000 Site Code***: currently not included in any Natura 2000 Site.
***Phytosociological table***: Suppl. material 1, Table S3; nomenclature and taxa delimitation according to Portal to the Flora of Italy (2023).
***Notes***: The habitat occurs on a stretch of sandy coast with natural conditions. The plant community found is related to *Cypero mucronati-Elytrigietum junceae* Br.-Bl. 1933, a widespread association on the sandy coasts of Italy.

## #86. Annex I Habitat: 2120 Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) (Caria MC, Serra S, Orrù G)

***EUNIS Classification system***: N144 - Western Tethyan white dunes, N14 Mediterranean, Macaronesian and Black Sea shifting coastal dune (formerly B1.32 - White dunes) (EEA 2021)
***Biogeographical Region***: Mediterranean
***National Habitat Checklist of reference***: Italian Interpretation Manual of the Directive 92/43/EEC Habitats (Biondi et al. 2009).
***Phytosociological reference***: *Ammophilion* Br.-Bl. 1921, *Ammophiletalia* Br.-Bl. and Tx. ex Westhoffet al. 1946, *Ammophiletea* Br.-Bl. and Tx. ex Westhoff et al. 1946 (Mucina et al. 2016).
***Geographic information***: Italy, Sardinia, Olbia, Santa Teresa, spiaggia La Liccia, 6 m a.s.l., Coordinates: 41.176851 N, 9172717 E (Suppl. material 1, Table S4, Rel 1); 7 m a.s.l., Coordinates: 41.176817 N, 9.173176 E (Suppl. material 1, Table S4, Rel. 2).
***Cell ID in the EEA reference grid***: 10kmE425N200 (Suppl. material 2, Figure S4).
***Natura 2000 Site Code***: ZSC ITB010006 "Monte Russu".
***Phytosociological table***: Suppl. material 1, Table S4; nomenclature and taxa delimitation according to Portal to the Flora of Italy (2023).
***Notes***: The surveys were conducted to monitor dune habitats within the Natura 2000 network and surrounding areas, funded by the Sardinia Regional Government in 2022. La Liccia beach exhibits a well-represented zonation of dunal habitats with 2120 habitat in optimal conservation status; in the still-intact dune crests, *Calamagrostis arenaria* subsp. *arundinacea* is associated with *Thinopyrum junceum*, and *Pancratium maritimum* is present.

## #87. Annex I Habitat: 3140: Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp. (Mei G, Stinca A)

***EUNIS Classification system***: C1 - Surface standing waters (EEA 2019)
***Biogeographical Region***: Mediterranean
***National Habitat Checklist of reference***: Italian Interpretation Manual of the Directive 92/43/EEC Habitats (Biondi et al. 2009).
***Phytosociological reference***: *Charion vulgaris* (Krause ex Krause and Lang 1977) Krause 1981, *Charetalia hispidae* Sauer ex Krausch 1964, *Charetea fragilis* F. Fukarek ex Krausch (Mucina et al. 2016, Biondi and Blasi 2015)
***Geographic information***: Italy, Tuscany, Firenze, Montecorboli, Borro dell'Argenna, 296 m a.s.l., Coordinates: 43.531168 N, 11.255227 E (Suppl. material 1, Table S5, Rel. 1); 303 m a.s.l., Coordinates: 43.530959 N, 11.255128 E (Suppl. material 1, Table S5, Rel. 2); 306 m a.s.l., Coordinates: 43.530277 N, 11.255002 E (Suppl. material 1, Table S5, Rel. 3).
***Cell ID in the EEA reference grid***: 10kmE442N227 (Suppl. material 2, Figure S5).
***Natura 2000 Site Code***: currently not included in any Natura 2000 Site.
***Phytosociological table***: Suppl. material 1, Table S5; nomenclature and taxa delimitation according to Portal to the Flora of Italy (2023).
***Notes***: The vegetation detected characterizes peri-fluvial environments with shallow waters of variable size and depth, at times temporarily stagnant, but always less than a meter deep. The underwater meadows surveyed appear to be characterized by the abundant presence of *Chara vulgaris* and algae of various types, not identifiable at the moment of the survey and are also characterized by the sporadic presence of *Tolypella prolifera*. The latter species is extremely rare in torrential environments, where when present together with *C. vulgaris* it takes value as an indicator of calcareous from mesotrophic to slightly eutrophic waters.

## #88. Annex I Habitat: 3150 Natural euthrophic lakes with *Magnopotamion* or *Hydrocharition*-type vegetation (Cannucci S, Fiaschi T, Angiolini C)

***EUNIS Classification system***: C1 - Surface standing waters (EEA 2019)
***Biogeographical Region***: Mediterranean.
***National Habitat Checklist of reference***: Italian Interpretation Manual of the Directive 92/43/EEC Habitats (Biondi et al. 2009).
***Phytosociological reference***: *Potametum natantis* Hild 1959, *Potamogetonion* Libbert 1931, *Potamogetonetalia* Koch 1926, *Potamogetonetea* Klika in Klika et Novak 1941 (Mucina et al. 2016).
***Geographic information***: Italy, Tuscany, Siena, Radda in Chianti, 451 m a.s.l., Coordinates: 43.50849 N, 11.39667 E (Suppl. material 1, Table S6, Rel. 1); 449 m a.s.l., Coordinates: 43.50845 N, 11.39685 E (Suppl. material 1, Table S6, Rel. 2); 450 m a.s.l., Coordinates: 43.50869 N, 11.39663 E (Suppl. material 1, Table S6, Rel. 3).
***Cell ID in the EEA reference grid***: 10kmE443N226 (Suppl. material 2, Figure S6).
***Natura 2000 Site Code***: currently not included in any Natura 2000 Site.
***Phytosociological table***: Suppl. material 1, Table S6; nomenclature and taxa delimitation according to Portal to the Flora of Italy (2023).
***Notes***: The habitat has been found in permanent agricultural ponds situated in Radda in Chianti (Siena). In particular, the communities detected are referred to habitat 3150 as they present a vegetation dominated by *Potamogeton natans* typical of ponds and marsh.

## #89. Annex I Habitat: 3150 Natural euthrophic lakes with Magnopotamion or Hydrocharition-type vegetation (Tomaselli V, Todaro F, Pazienza G)

***EUNIS Classification system***: C1 - Surface standing waters (EEA 2019)
***Biogeographical Region***: Mediterranean
***National Habitat Checklist of reference***: Italian Interpretation Manual of the Directive 92/43/EEC Habitats (Biondi et al. 2009).
***Phytosociological reference***: *Lemnetum gibbae* Miyawaki and J. Tüxen 1960, *Lemnion minoris* O. de Bolòs and Masclans 1955, *Lemnetalia minoris* O. de Bolòs and Masclans 1955, *Lemnetea minoris* O. de Bolòs et Masclans 1955; *Parvopotamo-Zannichellietum* palustris Koch ex Kapp and Sell 1965, *Potamogetonion* Libbert 1931, *Potamogetonetalia* Koch 1926, *Potamogetonetea* Klika in Klika and V. Novàk 1941 (Mucina et al. 2016, Castello et al. 2021).
***Geographic information***: Italy, Apulia, Taranto, Foce Patemisco, Massafra, 0 m a.s.l., Coordinates: 40.520659 N, 17.102599 E (Suppl. material 1, Table S7, Rel. 1); 40.520791 N, 17.102570 E (Suppl. material 1, Table S7, Rel. 2); 40.520702 N, 17.102877 E (Suppl. material 1, Table S7, Rel. 3)
***Cell ID in the EEA reference grid***: 10kmE492N196 (Suppl. material 2, Figure S6).
***Natura 2000 Site Code***: ZSC IT9130006 "Pinete dell'Arco Ionico".
***Phytosociological table***: Suppl. material 1, Table S7; nomenclature and taxa delimitation according to Portal to the Flora of Italy (2023).
***Notes***: *Lemnetum gibbae* and *Parvopotamo-Zannichellietum palustris* vegetation occur in correspondence of the mouth of the Patemisco River (Suppl. material 2, Figure S7), a few kilometres from Taranto, in close proximity to a freshwater spring; the latter is, in turn, covered by dense stands of Lemna minuta. This vegetation is in contact with *Helosciadietum nodiflori* Br.-Bl. 1952 and *Phragmitetum communis* (Koch 1926) Schmale 1939 (Spampinato et al 2023). The area is subject to intense tourist use, but what is likely to impact most the habitat is nitrate pollution of waters due to the influx from the surrounding intensively cultivated areas.

## #90. Annex I Habitat: 3170* Mediterranean Temporary Ponds (Cuccaro VC, Fanelli G, La Montagna D)

***EUNIS Classification system***: Q52311 - Terrestrial quillwort communities (EEA 2022)
***Biogeographical Region***: Mediterranean
***National Habitat Checklist of reference***: Italian Interpretation Manual of the Directive 92/43/EEC Habitats (Biondi et al. 2009).
***Phytosociological reference***: *Isoetion* Br.-Bl. 1936, *Isoetetalia* Br.-Bl. 1936, *Isoeto-Nanojuncetea* Br.-Bl. and Tüxen ex Westhoff, Dijk and Passchier 194, (Brullo and Minissale 1998, Mucina et al. 2016, Biondi and Blasi 2015)
***Geographic information***: Italy, Lazio, Frosinone, Ceprano, Selva di Pofi, 133 m a.s.l., Coordinates: 41.550036 N, 13.462028 E (Suppl. material 1, Table S8, Rel. 1); 136 m a.s.l., Coordinates: 41.549889 N, 13.462333 E (Suppl. material 1, Table S8, Rel. 2); 136 m a.s.l, Coordinates: 41.55025 N, 13.462833 E (Suppl. material 1, Table S8, Rel. 3); 137 m a.s.l, Coordinates: 41.5495 N, 13.46275 E (Suppl. material 1, Table S8, Rel. 4).
***Cell ID in the EEA reference grid***: 10kmE461N205 (Suppl. material 2, Figure S8).
***Natura 2000 Site Code***: currently not included in any Natura 2000 Site.
***Phytosociological table***: Suppl. material 1, Table S8; nomenclature and taxa delimitation according to Portal to the Flora of Italy (2023).
***Notes***: The habitat is represented by a network of small, shallow and numerous ponds scattered over *Quercus cerris* and *Quercus frainetto* forest stands growing on siliceous sands of ancient dunal substrate. Notwithstanding the high floristic and vegetational value, the area is not

included in the Natura 2000 network. The relevés represent only a small sample of the target vegetation actually present in this area.

## #91. Annex I Habitat: 3240 - Alpine rivers and their ligneous vegetation with *Salix eleagnos* (Patera G, Gennai M)

***EUNIS Classification system***: S911 - Orogenous riverine brush (EEA 2021).
***Biogeographical Region***: Mediterranean
***National Habitat Checklist of reference***: Italian Interpretation Manual of the Directive 92/43/EEC Habitats (Biondi et al. 2009).
***Phytosociological reference***: *Salicetum incano-purpureae* Sillinger 1933, *Salicion incanae* Aich. 1933, *Salicetalia purpureae* Moor 1958, *Salicetea purpureae* Moor 1958 (Biondi and Blasi 2015)
***Geographic information***: Italy, Campania, Salerno, Aquara, 84 m a.s.l., Coordinates: 40.462282 N, 15.205622 E (Suppl. material 1, Table S9, Rel. 1); Torre Orsaia, 43 m a.s.l., Coordinates: 40.129784 N, 15.506877 E (Suppl. material 1, Table S9, Rel. 2); Monforte Cilento, 200 m a.s.l., Coordinates: 40.34681 N, 15.17691 E (Suppl. material 1, Table S9, Rel. 3); Celle di Bulgheria, 38 m a.s.l., Coordinates: 40.09893 N, 15.36413 E (Suppl. material 1, Table S9, Rel. 4); Magliano Vetere, 300 m a.s.l., Coordinates: 40.344489 N, 15.267341 E (Suppl. material 1, Table S9, Rel. 5).
***Cells ID in the EEA reference grid***: 10kmE476N194 (Suppl. material 1, Table S9, Rel. 1), 10kmE479N190 (Suppl. material 1, Table S9, Rel. 2), 10kmE476N193 (Suppl. material 1, Table S9, Rel. 3), 10kmE478N190 (Suppl. material 1, Table S9, Rel. 4), 10kmE477N193 (Suppl. material 1, Table S9, Rel. 5) (Suppl. material 2, Figure S9).
***Natura 2000 Site Code***: Rels 1 and 5 of Table S9 are included in the ZSC IT8050002 "Alta Valle del Fiume Calore Lucano (Salernitano)", Rel. 2 of Table S9 in the ZSC IT8050007 "Basso Corso del fiume Bussento", Rel. 3 of Table S9 in the ZSC IT8050012 "Fiume Alento", Rel. 4 of Table S9 is included in the ZSC IT8050013 "Fiume Mingardo", Rel. 5 of Table S9 is included in the ZPS IT8050053 "Monti Soprano, Vesole e Gole del Fiume Calore Salernitano".
***Phytosociological table***: Suppl. material 1, Table S9; nomenclature and taxa delimitation according to Portal to the Flora of Italy (2023).
***Notes***: These cenoses are developed on the banks of the "fiumare" of Cilento, along the course of the main rivers of the National Park: Calore Lucano, Bussento, Alento and Mingardo (Fig. S10).

These are the first reported sites of occurrence of this habitat for Campania Region in the area of the "Cilento, Vallo di Diano and Alburni" National Park.

## #92. Annex I Habitat: 3260 Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation (Fanfarillo E, Fiaschi T, Angiolini C)

***EUNIS Classification system***: C2 - Surface running waters (EEA 2019)
***Biogeographical Region***: Mediterranean
***National Habitat Checklist of reference***: Italian Interpretation Manual of the Directive 92/43/EEC Habitats (Biondi et al. 2009).
***Phytosociological reference***: *Potamo pectinati-Myriophylletum spicati* Rivas Goday 1964, *Potamogetonion* Libbert 1931, *Potamogetonetalia* Koch 1926, *Potamogetonetea* Klika in Klika et Novák 1941 (Mucina et al. 2016).
***Geographic information***: Italy, Tuscany, Arezzo, Bucine, River Ambra, 245 m a.s.l., Coordinates: 43.4074923 N, 11.6015712 E (Suppl. material 1, Table S10, Rel. 1).
***Cell ID in the EEA reference grid***: 10kmE445N225 (Suppl. material 2, Figure S11).
***Natura 2000 Site Code***: currently not included in any Natura 2000 Site.
***Phytosociological table***: Suppl. material 1, Table S10; nomenclature and taxa delimitation according to Portal to the Flora of Italy (2023); algae nomenclature according to Mouronval (2015).
***Notes***: Though classified in the *Potamogetonion*, this vegetation should be attributed to the habitat 3260, since it occurs in rivers (Šumberová 2011).

## #93. Annex I Habitat: 3280 Constantly flowing Mediterranean rivers with *Paspalo-Agrostidion* species and hanging curtains of *Salix* and *Populus alba* (de Simone L, Mascia F, Angiolini C)

***EUNIS Classification system***: R554 - Mediterranean grasslands on alluvial river banks (formerly E5.4 - Moist or wet tall-herb and fern fringes and meadows) (EEA 2021)
***Biogeographical Region***: Mediterranean
***National Habitat Checklist of reference***: Italian Interpretation Manual of the Directive 92/43/EEC Habitats (Biondi et al. 2009).
***Phytosociological reference***: P*aspalo distichi-Agrostidion semiverticillatae* Br.-Bl. In Br.Bl., Roussine and Nègre 1952, *Paspalo-Heleochloetalia* Br.-Bl. ex Rivas Goday 1956, *Bidentetea* Tx. et al. ex von Rochow 1951 (Biondi and Blasi 2015)
***Geographic information***: Italy, Tuscany, Arezzo, Ambra River (diga di Ambra), 245 m a.s.l., Coordinates: 43.406898 N, 11.601260 E (Suppl. material 1, Table S11, Rels 1–2); Grosseto, Sovata River (stazione di Giuncarico), 17 m a.s.l., 42.909781 N 11.014244 E (Suppl. material 1, Table S11, Rel. 3); Siena, Orcia River (Stazi-

one di Sant'Angelo Cinigiano), 98 m a.s.l., Coordinates: 42.959458 N, 11.425122 (Suppl. material 1, Table S11, Rel. 4); Grosseto, Ombrone River (Campagnatico), 29 m a.s.l., Coordinates: 42.858663 N, 11.295229 E (Suppl. material 1, Table S11, Rel. 5).

***Cells ID in the EEA reference grid***: 10kmE445N225 (Suppl. material 1, Table S11, Rels 1–2); 10kmE440N220 (Suppl. material 1, Table S11, Rel. 3); 10kmE443N220 (Suppl. material 1, Table S11, Rel. 4); 10kmE442N219 (Suppl. material 1, Table S11, Rel. 5) (Suppl. material 2, Figure S12).

***Natura 2000 Site Code***: currently not included in any Natura 2000 Site.

***Phytosociological table***: Suppl. material 1, Table S11; nomenclature and taxa delimitation according to Flora d'Italia (Pignatti et al. 2017–2019).

***Notes***: The relevés have been carried out in the riverbeds of four permanent rivers in Tuscany. All investigated areas are similar in geomorphological features, having a soil type with prevalence of pebbles and coarse sand.

## #94. Annex I Habitat: 5230*: Arborescent matorral with *Laurus nobilis* (Cambria S, Tavilla G)

***EUNIS Classification system***: T22 - Mainland laurophyllous forest (Chytrý et al. 2020).

***Biogeographical Region***: Mediterranean

***National Habitat Checklist of reference***: Italian Interpretation Manual of the Directive 92/43/EEC Habitats (Biondi et al. 2009).

***Phytosociological reference***: *Asparago acutifolii-Laurion nobilis* Gianguzzi, Cuttonaro, Cusimano, Romano 2016, *Quercetalia ilicis* Br.-Bl. ex Molinier 1934, *Quercetea ilicis* Br.-Bl. ex A. Bolòs and O. de Bolòs in A. Bolòs y Vayreda 1950 (Guanguzzi et al. 2016).

***Geographic information***: Italy, Sicily, Messina, Cesarò, Anghira di Faccialonga, 797 m a.s.l., Coordinates: 37.917862 N, 14.614951 E (Suppl. material 1, Table S12, Rels 1–2).

***Cell ID in the EEA reference grid***: 10kmE472N166 (Suppl. material 2, Figure S13).

***Natura 2000 Site Code***: SAC ITA030039 "Monte Pelato"; SPA ITA030043 "Monti Nebrodi".

***Phytosociological table***: Suppl. material 1, Table S12; nomenclature and taxa delimitation according to Flora d'Italia (Pignatti et al. 2017–2019).

***Notes***: The *Laurus nobilis* microwoods in Sicily are very peculiar environments, having a significant biogeographical value and a diversified floristic set. This vegetation type has a fragmentary and circumscribed distribution and shows a relictual character (Brullo et al. 2001). Our relevés were recorded along the Caprino stream in a steep slope area named Anghira di Faccialonga (Messina province) (Figure S14), which has peculiar microclimatic conditions due to its northern exposure and the regular presence of fog and dew. This part of Sicily is also affected by relatively high rainfall. The surveyed vegetation belongs to the *Asparagus acutifolii-Laurion nobilis* alliance distributed in the Italian-Tyrrhenian biogeographical province (Gianguzzi et al. 2016). The vegetation structure at issue is characterized by the dominance of *Laurus nobilis*, growing together with few other woody species, such as *Quercus ilex*, and *Ficus carica*. Additionally, the occurrence of Ulmus glabra should be highlighted. Since this species generally is linked to the vegetation of the Meso-Supra-Mediterranean belts in Sicily. The herbaceous layer includes some nemoral species, such as *Stachys sylvatica, Sanicula europaea, Cyclamen hederifolium, Aremonia agrimonoides*, etc. This vegetation is in contact with extensive forest communities dominated by *Quercus gussonei* (Borzí) Brullo referable to *Quercetum gussonei* Brullo and Marcenò 1985, a community widely distributed in the northern sector of the Nebrodi mountains between 700 and 1100 m a.s.l. (Brullo et al. 2008). Furthermore, it should be noted that this new record of *Laurus nobilis* phytocoenosis falls within zone A of the Regional Natural Park of the Nebrodi, and in two Natura 2000 sites (ITA030039, ITA030043).

The authors thank "Azienda Speciale Silvo Pastorale del Comune di Troina" for its support during the fieldwork.

## #95. Annex I Habitat: 6110* Rupicolous calcareous or basophilic grasslands of the *Alysso-Sedion albi* (Iamonico D, Capotorti G)

***EUNIS Classification system***: R13 Cryptogam- and annual-dominated vegetation on calcareous and ultramafic rock outcrops (formerly E1.1 - Inland sand and rock with open vegetation) (EEA 2021)

***Biogeographical Region***: Mediterranean

***National Habitat Checklist of reference***: Italian Interpretation Manual of the Directive 92/43/EEC Habitats (Biondi et al. 2009).

***Phytosociological reference***: *Alysso alyssoidis-Sedion* Oberd. and T. Müller in T. Müller 1961, *Alysso-Sedetalia* Moravec 1967, *Sedo-Scleranthetea* Br.-Bl. 1955 (Mucina et al. 2016).

***Geographic information***: Italy, Lazio, Rome, Aguzzano Urban Park , 28 m a.s.l., Coordinates: 41.938889 N, 12.571111 E (Suppl. material 1, Table S13, Rel. 1).

***Cell ID in the EEA reference grid***: 10kmE453N209 (Suppl. material 2, Figure S15).

***Natura 2000 Site Code***: currently not included in any Natura 2000 Site.

***Phytosociological table***: Suppl. material 1, Table S13; nomenclature and taxa delimitation according to Portal to the Flora of Italy (2023).

***Notes***: The Habitat 6110* has been reported also into the cells 10kmE454N209 and 10kmE455N209 which are adjacent (toward east) to the cell 10kmE453N209. Despite the two former cells include parts of the territory of the Rome Municipality, the Habitat was only previously known to be present in the Municipality of Tivoli, into

the SAC "Travertini Acque Albule (Bagni di Tivoli)" (see also Iamonico and Di Pietro 2018; Di Pietro et al. 2022). So, our discovery represents the first one for the Rome Municipality. Worth of note is that the Aguzzano Urban Park is included into the Great Ring Junction of Rome and embedded into an urban matrix. In this landscape context, the detected habitat was expected to be affected by degradation due to human pressures (e.g. for the presence of alien and ruderal species). In fact, as reported in the relevé (Suppl. material 1, Table S13), we found *Crepis sancta* L. subsp. *nemausensis* (P.Fourn.) Babc., an alien species for Italy, which is frequent.

The work was included in a project funded under the National Recovery and Resilience Plan (NRRP), Mission 4 Component 2 Investment 1.4 - Call for tender No. 3138 of 16 December 2021, rectified by Decree n.3175 of 18 December 2021 of Italian Ministry of University and Research funded by the European Union – NextGenerationEU. Project code CN_00000033, Concession Decree No. 1034 of 17 June 2022 adopted by the Italian Ministry of University and Research, CUP B83C22002950007, Project title "National Biodiversity Future Center - NBFC".

## #96. Annex I Habitat: 6420 Mediterranean tall humid herb grasslands of the *Molinio-Holoschoenion* (Fiaschi T, Fanfarillo E, Angiolini C)

***EUNIS Classification system***: included in R31 – Mediterranean tall humid inland grassland (Chytrý et al. 2020).
***Biogeographical Region***: Mediterranean.
***National Habitat Checklist of reference***: Italian Interpretation Manual of the Directive 92/43/EEC Habitats (Biondi et al. 2009).
***Phytosociological reference***: *Molinio-Holoschoenion* Br.-Bl. ex Tchou 1948; *Holoschoenetalia* Br.-Bl. ex Tchou 1948; *Molinio-Arrhenatheretea* Tx. 1937 (Mucina et al. 2016).
***Geographic information***: Italy, Tuscany, Siena, Colle di Val d'Elsa, 172 m a.s.l., Coordinates: 43.403898 N, 11.137482 E (Suppl. material 1, Table S14, Rel. 1); 122 m a.s.l., Coordinates: 43.4209596 N, 11.1320703 E (Suppl. material 1, Table S14, Rel. 2); 117 m a.s.l., Coordinates: 43.4307013 N, 11.1336307 E (Suppl. material 1, Table S14, Rel. 3).
***Cell ID in the EEA reference grid***: 10kmE441N225 (Suppl. material 2, Figure S16).
***Natura 2000 Site Code***: currently not included in any Natura 2000 Site.
***Phytosociological table***: Suppl. material 1, Table S14; nomenclature and taxa delimitation according to Portal to the Flora of Italy (2023).
***Notes***: The presence of this habitat along the Elsa River was recently recorded for the first time (Rivieccio et al. 2022). The occurrences here reported extend the knowledge on its local distribution.

## #97. Annex I Habitat: 6430 Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels (Fiaschi T, Fanfarillo E, Angiolini C)

***EUNIS Classification system***: R55 – Lowland moist or wet tall-herb and fern fringe (EEA 2021).
***Biogeographical Region***: Mediterranean.
***National Habitat Checklist of reference***: Italian Interpretation Manual of the Directive 92/43/EEC Habitats (Biondi et al. 2009).
***Phytosociological reference***: *Aegopodion podagrariae* Tx. 1967, *Circaeo lutetianae-Stachyetalia sylvaticae* Passarge 1967, *Epilobietea angustifolii* Tx. and Preising ex von Rochow 1951 (Mucina et al. 2016).
***Geographic information***: Italy, Tuscany, Siena, Colle di Val d'Elsa, 147 m a.s.l., Coordinates: 43.407292 N, 11.135162 E (Suppl. material 1, Table S15, Rel. 1); 122 m a.s.l., Coordinates: 43.41907 N, 11.13432 E (Suppl. material 1, Table S14, Rel. 2); 113 m a.s.l., Coordinates: 43.430714 N, 11.137387 E (Suppl. material 1, Table S15, Rel. 3).
***Cell ID in the EEA reference grid***: 10kmE441N225 (Suppl. material 2, Figure S17).
***Natura 2000 Site Code***: currently not included in any Natura 2000 Site.
***Phytosociological table***: Suppl. material 1, Table S15; nomenclature and taxa delimitation according to Portal to the Flora of Italy (2023).
***Notes***: Along the Elsa River, this habitat is especially present in clearings of meso-hygrophilous woods, in a fragmentary way. Artificial modifications of the hydrological regime could be a local threat to its conservation.

## #98. Annex I Habitat: 8210 Calcareous rocky slopes with chasmophytic vegetation (Morabito A, Musarella CM, Spampinato G)

***EUNIS Classification system***: H3.2 - Basic and ultra-basic inland cliffs (Chytrý et al. 2020).
***Biogeographical Region***: Mediterranean
***National Habitat Checklist of reference***: Italian Interpretation Manual of the Directive 92/43/EEC Habitats (Biondi et al. 2009).
***Phytosociological reference***: *Erucastretum virgati* Brullo and Marcenò 1979, *Dianthion rupicolae* Brullo and Marcenò 1979, *Asplenietalia glandulosi* Br. - Bl. and Meier in Meier and Br. - Bl. 1934, *Asplenietea trichomanis* (Br. - Bl. in Meier and Br. - Bl. 1934) Oberdorfer 1977 (Biondi and Blasi 2015; Brullo and Marcenò 1979).
***Geographic information***: Italy, Calabria, Reggio Calabria, Roccella Ionica, Castello, 65 m a.s.l. Coordinates: 38.327394 N, 16.407747 E (Suppl. material 1, Table S16, Rel. 1);
***Cell ID in the EEA reference grid***: 10kmE488N171 (Suppl. material 2, Figure S18).

***Natura 2000 Site Code***: currently not included in any Natura 2000 Site.
***Phytosociological table***: Suppl. material 1, Table S16; nomenclature and taxa delimitation according to Portal to the Flora of Italy (2023).
***Notes***: The habitat hosts a population of *Ptilostemon gnaphaloides*, an eastern Mediterranean species that grows spontaneously in Italy only on the cliffs of eastern Calabria, which is assessed, according to IUCN criteria, as vulnerable (Conti et al. 1997). The phytocenosis found is related to Erucastretum virgatae Brullo and Marcenò 1979, an association of *Dianthion rupicolae* Brullo and Marcenò 1979 distributed in southern Calabria and North-Eastern Sicily. The presence of *Ptilostemon gnaphaloides* also allows the community to be assigned to the subassociation *Erucastretum virgati centaureetosum ionicae* Brullo and Marcenò 1979, exclusive to the Ionian slopes of Central-Southern Calabria (Brullo et al. 2001a; Brullo and Spampinato 2003; Spampinato et al. 2009).

## #99. Annex I Habitat: 92A0 *Salix alba* and *Populus alba* galleries (Gianguzzi L, Rocca R, Bazan G)

***EUNIS Classification system***: T1424 (G1.314 formerly) - Italic poplar galleries (Chytrý et al. 2020).
***Biogeographical Region***: Mediterranean
***National Habitat Checklist of reference***: Italian Interpretation Manual of the Directive 92/43/EEC Habitats (Biondi et al. 2009).
***Phytosociological reference***: *Populion albae* Br.-Bl. ex Tchou 1948, *Populetalia albae* Br.-Bl. ex Tchou 1948, *Salici purpureae-Populetea nigrae* Rivas-Martínez and Cantó ex Rivas-Martínez, Báscones, T.E. Díaz, Fernández-González and Loidi 2001 (Biondi and Blasi 2015).
***Geographic information***: Italy, Sicily, Mirto, Vallone Tiberio (Fig. S20), 289 m a.s.l., Coordinates: 38.092432 N, 14.740551 E (Suppl. material 1, Table S17, Rel. 1); 269 m a.s.l., Coordinates: 38.093032 N, 14.740928 E (Suppl. material 1, Table S17, Rel. 2); Vallone di Case della Fornace (Fig. S21), 295 m a.s.l., Coordinates: 38.091828 N, 14,741653 E (Suppl. material 1, Table S17, Rel. 3); Caprileone, Torrente Cammà, 350 m a.s.l., Coordinates: 38.088419 N, 14.730474 E (Suppl. material 1, Table S17, Rel. 4).
***Cell ID in the EEA reference grid***: 10kmE473N168 (Suppl. material 2, Figure S19).
***Natura 2000 Site Code***: currently not included in any Natura 2000 Site.
***Phytosociological table***: Suppl. material 1, Table S17; nomenclature and taxa delimitation according to Portal to the Flora of Italy (2023).
***Notes***: Riparian forests dominated by *Salix* sp. pl. and *Populus* sp. pl. (*P. nigra* and *P. alba*) referred to the alliance *Populion albae* are well represented throughout the Italian peninsula. Being linked to a macrobioclimate between thermo- and meso-Mediterranean, they tend to become less frequent in south Italy and on the larger islands, disappearing entirely the small circumsicilian islands. In Sicily, they are mainly found in the hilly and submontane belts (Brullo and Spampinato 1990, Gianguzzi et al. 2016), related to the mid-mountain sections of watercourses, especially in the climatic belt of thermophilous deciduous oaks of the *Quercus pubescens* cycle (Brullo et al. 2006; Di Pietro et al. 2020a, 2020b). The new stations reported concern the Tyrrhenian side of the Nebrodi Mountains, related to small stands along some watercourses in the territory of the Mirto and Caprileone municipalities (Torrente Cammà, Vallone near Case Fornace, and Vallone Tiberio), all tributaries of the Fiumara Zappulla.

The identified nuclei concern two different riparian formations – clearly dominated, respectively, by *P. alba* (Rels 1–2) and *P. nigra* (Rels 3–4) – both attributable to habitat 92A0. The aspects of *P. nigra* (Rel. 3) are relatively more common in Sicily (Brullo and Spampinato 1990), although not yet indicated for this area. Relevés 1 and 2, on the other hand, characterize interesting aspects clearly dominated by *P. alba*, which are much rarer, both in the Nebrodi Mountains and in Sicily. They are generally associated with cooler and more humid stretches of watercourses, where they typically have a punctual and fragmented distribution. The stations identified in the territory of the Mirto municipality are located between the branches of the Vallone Tiberio and the stream near the Case della Fornace; they add to other interesting wet sites recently reported for the Nebrodi area (De Castro et al. 2008, 2015; Troia et al. 2017), but also for other parts of Sicily (Caldarella et al. 2009, 2013, 2021; Gianguzzi et al. 2013, 2021; Gianguzzi and La Mantia 2008; Sciandrello et al. 2022).

This research is supported by NBFC to University of Palermo, funded by the Italian Ministry of University and Research, PNRR, Missione 4 Componente 2, "Dalla ricerca all'impresa", Investimento 1.4, Project CN00000033.

## #100. Annex I Habitat: 9320 *Olea* and *Ceratonia* forests (Gianguzzi L, Bazan G)

***EUNIS Classification system***: T241 (formerly G2.41) - Wild Olea europaea forest (Chytrý et al. 2020).
***Biogeographical Region***: Mediterranean
***National Habitat Checklist of reference***: Italian Interpretation Manual of the Directive 92/43/EEC Habitats (Biondi et al. 2009).
***Phytosociological reference***: *Chamaeropo humilis-Oleetum sylvestris acanthetosum mollis* Gianguzzi and Bazan 2019 (Suppl. material 1, Tab. S17, Rels 1–3); *Ruto chalepensis-Oleetum sylvestris oleetosum sylvestris* Gianguzzi and Bazan 2019 (Suppl. material 1, Tab. S17, Rels 4–8); *Oleo sylvestris-Ceratonion siliquae* Br.-Bl. ex Guinochet and Drouineau 1944; *Pistacio lentisci-Rhamnetalia alaterni* Rivas-Martínez 1975; *Quercetea ilicis* Br.-Bl. in Br.-Bl., Roussine and Nègre 1952 (Biondi and Blasi 2015).

**Table 1.** Synthetic overview of the newly reported data .

| Hab ID | Hab name | Cell ID | Country | BR | N2000 Site | Authors |
|---|---|---|---|---|---|---|
| 1410 | Mediterranean salt meadows (*Juncetalia maritimi*) | 10kmE418N179 | Italy | MED | - | Mascia F., Orrù I. |
| | | 10kmE488N171 | | | - | Morabito A., Musarella C.M., Spampinato G. |
| 2110 | Embryonic shifting dunes | | Italy | MED | | Rivieccio G., Caria M.C., Bagella S. |
| | | 10kmE425N201, 10kmE425N200 | | | ITB010006, ITB010007 | |
| 2120 | Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) | 10kmE425N200 | Italy | MED | ITB010006 | Caria M.C., Serra S., Orrù G. |
| 3140 | Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp. | 10kmE442N227 | Italy | MED | - | Mei G., Stinca A. |
| | Natural euthrophic lakes with | 10kmE492N196 | | | IT9130006 | Tomaselli V., Todaro F., Pazienza G. |
| 3150 | *Magnopotamion* or *Hydrocharition*-type vegetation | | Italy | MED | | Cannucci S., Fiaschi T., Angiolini C. |
| | | 10kmE443N226 | | | - | |
| 3170* | Mediterranean Temporary Ponds | 10kmE461N205 | Italy | MED | - | Cuccaro V.C., Fanelli G., La Montagna D. |
| 3240 | Alpine rivers and their ligneous vegetation with *Salix eleagnos* | 10kmE476N194, 10kmE479N190, 10kmE476N193, 10kmE478N190, 10kmE477N193 | Italy | MED | IT8050002, IT8050007, IT8050012, IT8050013, IT8050053 | Patera G., Gennai M. |
| 3260 | Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation | 10kmE445N225 | Italy | MED | - | Fanfarillo E., Fiaschi T., Angiolini C. |
| 3280 | Constantly flowing Mediterranean rivers with *Paspalo-Agrostidion* species and hanging curtains of *Salix* and *Populus alba* | 10kmE445N223, 10kmE443N220, 10kmE440N220, 10kmE442N219 | Italy | MED | - | de Simone L., Mascia F., Angiolini C. |
| 5230* | Arborescent matorral with *Laurus nobilis* | 10kmE472N166 | Italy | MED | ITA030039 | Cambria S., Tavilla G. |
| 6110* | Rupicolous calcareous or basophilic grasslands of the *Alysso-Sedion albi* | 10kmE453N209 | Italy | MED | - | Iamonico D., Capotorti G. |
| 6420 | Mediterranean tall humid herb grasslands of the *Molinio-Holoschoenion* | 10kmE441N225 | Italy | MED | - | Fiaschi T., Fanfarillo E., Angiolini C. |
| 6430 | Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels | 10kmE441N225 | Italy | MED | - | Fiaschi T., Fanfarillo E., Angiolini C. |
| 8210 | Calcareous rocky slopes with chasmophytic vegetation | 10kmE488N171 | Italy | MED | - | Morabito A., Musarella C.M., Spampinato G. |
| 92A0 | *Salix alba* and *Populus alba* galleries | 10kmE473N168 | Italy | MED | - | Gianguzzi L., Rocca R., Bazan G. |
| | | 10kmE479N159 | | | - | |
| 9320 | *Olea* and *Ceratonia* forests | 10kmE457N161 | Italy | MED | ITA040009 | Gianguzzi L, Bazan G. |
| | | 10kmE479N158 | | | - | |
| | | 10kmE461N160 | | | - | |
| 9330 | *Quercus suber* forests | 10kmE496N199 | Italy | MED | - | Perrino E.V. |

***Geographic information***: Italy, Sicily, Sciacca, Torre Barone (Fig. S23), 67 m a.s.l., Coordinates: 37.502520 N, 13.125969 E (Suppl. material 1, Table S18, Rel. 1); 58 m a.s.l., Coordinates: 37,499671 N, 13,126794 E (Suppl. material 1, Table S18, Rel. 2); 50 m a.s.l., Coordinates: 37.497672 N, 13.125938 E (Suppl. material 1, Table S18, Rel. 3); San Calogero, 240 m a.s.l., Coordinates: 37.524042 N, 13.130859 E (Suppl. material 1, Table S18, Rel. 4); Agrigento, Contrada Borangio (Suppl. material 2, Fig. S24), 295 m a.s.l., Coordinates: 37.417664 N, 13.421282 E (Suppl. material 1, Table S18, Rel. 5); Santa Elisabetta, cliff to the north of the village, 500 m a.s.l., Coordinates: 37.435198 N, 13.555836 E (Suppl. material 1, Table S18, Rel. 6); Sant'Angelo Muxaro, slopes to the east of the village, 140 m a.s.l., Coordinates: 37.480031 N, 13.540552 E (Suppl. material 1, Table S18, Rel. 7); Sicilia, Sant'Angelo Muxaro, Monte dell'Inferno, 125 m a.s.l., Coordinates: 37.486943 N, 13.484225 E (Suppl. material 1, Table S18, Rel. 8);

***Cells ID in the EEA reference grid***: 10kmE479N159 (Tab. S18, Rels 1–3); 10kmE457N161 (Suppl. material 1, Tab. S18, Rel. 4); 10kmE479N158 (Suppl. material 1, Tab. S18, Rel. 5); 10kmE461N160 (Suppl. material 1, Tab. S18, Rels. 6–8) (Suppl. material 2, Figure S22).

***Natura 2000 Site Code***: Rel. 4 of Tab. S18 is included in ITA040009 "Monte San Calogero (Sciacca)" the other relevés are currently not included in any Natura 2000 Site.

***Phytosociological table***: Suppl. material 1, Table S18; taxonomic nomenclature according to Portal to the Flora of Italy (2023).

***Notes***: The oleaster vegetation of Sicily has been the subject of recent phytosociological studies (Gianguzzi and Bazan 2019, 2020), as well as distributional surveys, which led to updating habitat 9320 (Gianguzzi et al. 2020; Bazan et al. 2021). Further geobotanical investigations of floristic and phytosociological character in inland Sicily (Gianguzzi et al. 2014) have led to the identification of other interesting stands of the habitat in the territory of the Agrigento province. They are phytosociologically referred to the associations *Chamaeropo humilis-Oleetum sylvestris acanthetosum mollis*, on calcarenite substrates (Suppl. material 1, Tab. S18, Rels 1–3) and on limestones (Suppl. material 1, Tab. S18, Rel. 4), and *Ruto chalepensis-Oleetum sylvestris oleetosum sylvestris*, on gypsum substrates (Suppl. material 1, Tab. S18, Rels 5–8). The identified formations, based on their characteristics, appear to be natural. In fact, the oleaster has been extensively used by humans for agricultural purposes as a rootstock for the olive tree. In many cases in Sicily, changes in farming systems (Bazan et al. 2020) and the abandonment of old olive groves, sometimes centuries-old (Schicchi et al. 2021), are contributing to the recovery of natural/subnatural communities of oleasters, especially on rocky and xeric substrates in the thermomediterranean belt.

## #101. Annex I Habitat: 9330 *Quercus suber* forests (Perrino EV)

***EUNIS Classification system***: T211 *Quercus suber* forest (formerly G2.11) (EEA 2021)

***Biogeographical Region***: Mediterranean

***National Habitat Checklist of reference***: Italian Interpretation Manual of the Directive 92/43/EEC Habitats (Biondi et al. 2009).

***Phytosociological reference***: *Carici halleranae-Quercetum suberis* Biondi, Casavecchia, Guerra, Medagli, Beccarisi and Zuccarello 2004, F*raxino Orni-Quercion ilicis* Biondi, Casavecchia and Gigante ex Biondi, Casavecchia and Gigante in Biondi, Allegrezza, Casavecchia, Galdenzi, Gigante and Pesaresi 2013, *Quercetalia ilicis* Br.-Bl. ex Molinier 1934, *Quercetea ilicis* Br.-Bl. in Br.-Bl., Roussine and Nègre 1952. (Biondi et al. 2009, Beccarisi et al. 2010, Biondi et al. 2013)

***Geographic information***: Italy, Apulia, Brindisi, Ostuni, Pozzella, 19 m a.s.l., Coordinates: 40.762880 N, 17.656688 E (Suppl. material 1, Table S19, Rel. 1); Italy, Apulia, Brindisi, Ostuni, Pozzella, 18 m a.s.l., Coordinates: 40.763764 N, 17.656724 E (Suppl. material 1, Table S19, Rel. 2)

***Cell ID in the EEA reference grid***: 10kmE496N199 (Suppl. material 2, Figure S25)

***Natura 2000 Site Code***: currently not included in any Natura 2000 Site.

***Phytosociological table***: Suppl. material 1, Table S19; nomenclature and taxa delimitation according to Portal to the Flora of Italy (2023).

***Notes***: In the study area, along the coastal rocky from Villanova to T. Santa Sabina, it is possible to observe many small depressions, directed roughly N-S, that starting from the coastline head in the hinterland (Figure S26). In one of these places, at about 1 km from the seacoast in a locality named "Pozzella", there is a very interisting cork oak site with over 50 individuals, many of which are centuries old. This population represent the westernmost limit of the species and also of his habitat and, therefore, must be considered of great phytogeographical interest. This site is rather hidden and difficult to observe, and for this reason it was previously overlooked by botanists, that surveyed other cork places located further inland in the same municipality of Ostuni (Biondi et al. 2004, Beccarisi et al. 2010).

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# Supplementary material 1

## Tables S1–S19

Authors: Giovanni Rivieccio, Simonetta Bagella, Giuseppe Bazan, Salvatore Cambria, Silvia Cannucci, Giulia Capotorti, Maria Carmela Caria, Virginia Chiara Cuccaro, Leopoldo De Simone, Giuliano Fanelli, Emanuele Fanfarillo, Tiberio Fiaschi, Matilde Gennai, Lorenzo Gianguzzi, Duilio Iamonico, Dario La Montagna, Francesco Mascia, Giacomo Mei, Antonio Morabito, Carmelo Maria Musarella, Gianluca Orrù, Ines Orrù, Glauco Patera, Gaetano Pazienza, Enrico Vito Perrino, Riccardo Rocca, Silvia Serra, Giovanni Spampinato, Adriano Stinca, Gianmarco Tavilla, Francesco Todaro, Valeria Tomaselli, Claudia Angiolini

Data type: tables

Explanation note: Phytosociological tables

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# Supplementary material 2

## Figures S1–S26

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Data type: maps and photos

Explanation note: Figures with the new cells distribution in Italy and maps with closeup pictures of vegetation types

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